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# **Fernald Environmental Management Project (FEMP)**



**Report from the DOE  
Voluntary Protection Program  
Onsite Review, October 23-27, 2000**



**U. S. Department of Energy**  
Office of Environment, Safety and Health  
Office of Safety and Health  
Office of Regulatory Liaison

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# Abbreviations and Acronyms

<b>ALARA</b>	As Low As Reasonably Achievable
<b>AWP</b>	Automated Work Package
<b>BLS</b>	Bureau of Labor Statistics, U.S. Department of Labor
<b>CAIRS</b>	Computerized Accident/Incident Reporting System
<b>CFR</b>	Code of Federal Regulations
<b>CMMS</b>	Computerized Maintenance Management System
<b>DOE</b>	U. S. Department of Energy
<b>DOE-VPP</b>	Department of Energy Voluntary Protection Program
<b>EH</b>	Office of Environment, Safety and Health
<b>ES&amp;H</b>	Environment, Safety and Health
<b>FEMP</b>	Fernald Environmental Management Project
<b>GET</b>	General Employee Training
<b>HQ</b>	Headquarters
<b>IIR</b>	Injury Incidence Rate
<b>ISM</b>	Integrated Safety Management
<b>JSA</b>	Job Safety Analysis
<b>LWDI</b>	Lost Workday Incidence Rate
<b>MSDS</b>	Material Safety Data Sheet
<b>OH</b>	Ohio Field Office, (U.S. DOE)
<b>ORR</b>	Operational Readiness Review
<b>OSHA</b>	Occupational Safety and Health Administration

<b>PEL</b>	Permissible Exposure Limit
<b>PPE</b>	Personal Protective Equipment
<b>RA</b>	Risk Assessment
<b>RWP</b>	Radiation Work Permit
<b>RCT</b>	Radiological Control Technician
<b>RII</b>	Recordable Injury Incidence
<b>SIC</b>	Standard Industrial Classification
<b>S&amp;H</b>	Safety and Health
<b>SSR</b>	Standard Start-up Review
<b>TRC</b>	Total Recordable Cases
<b>TWA</b>	Time-Weighted Average
<b>VPP</b>	Voluntary Protection Program

## Executive Summary

An on-site review was conducted at Fernald Environmental Management Project (FEMP) in Fernald, Ohio, during the week of October 23-27, 2000 to determine the site's eligibility for participation in the Department of Energy's (DOE) Voluntary Protection Program (VPP). This report is based upon information provided in the application; safety and health program documentation reviewed at the site, interviews with management and craft employees, and a walkthrough review of the work site. The plant walkthrough included all areas of the plant. At the time of this review, there were 1727 Fluor Fernald and 572 subcontractor employees at the FEMP or a total of 2299 employees.

The FEMP is properly classified under the Standard Industrial Classification (SIC) Code 4953 for Refuse Systems. The work site is located on 1050 acres spanning Hamilton and Butler counties in Ohio. The street address is 7400 Willey Road, Fernald, Ohio, 45013.

### Management Leadership

Management's attitude toward safety and health is very pro-active. Resources, cooperation, time, and total support is consistently provided to the safety and health program. Program requirements for management commitment have been met, including clearly written policy and assignments of authority and accountability for managers and supervisors. The Site Manager's commitment is clearly evident by the effort that has been put into the program. Top-level management, including the President of Fluor Fernald, Incorporated, regularly participates in walkthroughs of workspaces in the facility to demonstrate their commitment to safety and to seek feedback from employees.

### Employee Involvement

Employee involvement is ensured by participation in numerous committees, including the 25-Member Safety Committee, the Construction Safety Committee, and the Tripartite Committee. Additionally, employees participate in Safety First Workgroups as part of the Safety First Team Committee. The site also meets the requirement for construction applicants by having a joint labor-management committee for health and safety.

### Worksite Analyses

Management has clear understanding and knowledge of the hazards at this site. Quantitative industrial hygiene monitoring is conducted by industrial hygienists, or industrial hygiene technicians under the guidance of an industrial hygienist, as appropriate. The site has a comprehensive assessment program in place to evaluate the radiological protection program against Title 10, Code of Federal Regulations (CFR), Part 835, Occupational Radiation Protection. Prior to purchase, new equipment, materials and processes are analyzed by occupational safety and health professionals for potential hazards. For site operations and maintenance, the hazards are identified and an

analysis is performed in order to provide appropriate protective measures for the particular hazard(s). Formal self-inspections and audits are conducted at FEMP on a routine basis. Many audits are performed daily while formal self-inspections are performed weekly and the results compiled and acted upon as necessary. Accidents and incidents are investigated as required by site procedures following the guidelines and criteria of DOE Order 225.1. All injuries are trended each month by injury classification, job classification of injured employee, injury type, body part injured, cause, time of injury, location, and injured employee's experience level.

### **Hazard Prevention and Control**

Hazards are controlled by a variety of engineering controls, personal protective equipment (PPE), and work practice guidelines. Engineering controls are the preferred method for eliminating/ minimizing employee exposure to hazards. Hazards are usually anticipated and the personal protective equipment necessary for safe completion of a job is supplied by the subcontractors and, where necessary, the contractor. PPE is required throughout the site with 29CFR1910.120 level D clothing required in the former process area and on all construction sites. The preventive maintenance program is accomplished by performing inspections, calibrations, tests, and services at specific intervals. The medical programs on the site for employees were excellent. There are two full-time physicians on site maintaining coverage during day hours when more than 90 percent of the workforce is on duty. Fluor Fernald has had a progressive disciplinary system in place for several years. Employees are aware that failure to follow safety rules could result in disciplinary action. FEMP performs annual emergency drills to ensure all employees are involved in at least one drill.

### **Safety and Health Training**

Fluor Fernald has an on-site training department staffed with thirteen instructors. The staff is supplemented as needed by on-site subject and project experts, the University of Cincinnati and University of Findley faculties, and commercial training vendors. In addition to receiving General Employee Training (GET), all employees receive safety and health training appropriate for the hazards to which they are potentially exposed. Supervisors understand the hazards present on the site and how to protect themselves from those hazards and understand their safety and health roles and responsibilities. Likewise, employees understand the hazards of their jobs, their safety and health roles and responsibilities, and the proper use of required personal protective equipment (PPE).

### **Recommendation**

Fluor Fernald has provided all VPP assurances. The team was able to reach a consensus conclusion that the applicant met and exceeded the acceptance criteria for DOE-VPP. The team conclusions segment of this report also includes two recommendations for program improvements.

# I. Introduction

The on-site review was conducted at Fernald Environmental Management Project (FEMP) in Fernald, Ohio, during the week of October 23-27, 2000 to determine the site's eligibility for participation in the Department of Energy's (DOE) Voluntary Protection Program (VPP). FEMP was evaluated against the program requirements contained in U.S. Department of Energy, Voluntary Protection Program, Part I: Program Elements, to determine its success in implementing the five tenets of DOE-VPP. The team consisted of a diverse group of individuals from the DOE Headquarters Office, the DOE Ohio Field Office (OH), an individual from West Valley Nuclear Services (WVNS) and a representative from the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA). Specifically, the DOE-VPP On-site Evaluation Team consisted of Ron Eimer, Team Leader, DOE-HQ; Warren Devereux, Assistant Team Leader, DOE-HQ; Victor Taylor (Fernald Area Office, DOE-OH), Howard Etkind (DOE-OH), Margaret Marks Lachman (DOE-OH), Bud Schmidt (DOE-OH), Terry Shaw (WVNS), and Bill Wilkerson (OSHA).

Fluor Fernald, (owned by Fluor Corporation) is the DOE contractor for the site. In 1992, Fluor Daniel Fernald assumed responsibility for managing cleanup activities. The site has a long history dating back to 1951 when the Atomic Energy Commission, predecessor to the Department of Energy, broke ground for the facility. When the Cold War terminated, the resulting scale back in military spending led to a curtailment of uranium metal production at the site. In 1989, the U.S. Environmental Protection Agency added Fernald to its National Priorities List of federal facilities needing environmental remediation on a high priority basis. There are seven major cleanup projects in progress. These include: 1) Aquifer Restoration/Wastewater Project; 2) Decontamination and Dismantlement Projects; 3) On-site Disposal Facility Project; 4) Silos Project; 5) Soil Characterization and Excavation Project; 6) Waste Pits Remedial Action Project; and, Waste Management. Presently, the site is well underway in its cleanup efforts. It is anticipated that cleanup activities will be completed in 2008 for subsequent transfer of most of the property to the State of Ohio for public-use activities.

This report is based upon information provided in the application; safety and health program documentation reviewed at the site, interviews with management and craft employees, and a walkthrough review of the work site. The plant walkthrough included all areas of the plant. At the time of this review, there were 1727 Fluor Fernald and 572 subcontractor employees at the FEMP or a total of 2299 employees.



## II. Program Status

The FEMP is properly classified under the Standard Industrial Classification (SIC) Code 4953 for Refuse Systems. Statistics available for SIC 495 from the U.S. Department of Labor’s Bureau of Labor Statistics (BLS) were used for comparative purposes.

A review of the OSHA 200 logs was made covering the current year-to-date and the previous three years. In order to calculate the lost workday incidence (LWDI) and recordable injury incidence (RII) rates, the team used two standard formulas:

$$\text{RII rate} = \frac{\text{No. of recordable incidents [Col.(1) + Col.(2) + Col.(6)] x 200,000}{\text{No. of employee hours worked}}$$

$$\text{and LWDI rate} = \frac{\text{No. of LWD cases [Col.(2)] x 200,000}{\text{No. of employee hours worked}}$$

The following are the total incidence and lost workday injury rates (including those for subcontractors) since 1997:

YEAR	HOURS	TOTAL CASES	IIR	LWDI	LWDI RATE
1997	4,433,088	54	2.44	34	1.53
1998	4,899,171	32	1.31	12	0.49
1999	4,783,224	37	1.55	24	1.00
<b>TOTAL</b>	14,115,483	123		70	
Three-year rate (1997-1999)			1.74		0.99
BLS national average for 1997-98 (SIC 495)			10.85		5.9
2000 YTD	3,266,650	33	2.02	14	0.86

The three-year injury incidence rate (IIR) and lost or restricted workday rate (LWDI) for the period (1997-1999) are 1.74 and 0.99 respectively. Thus, the site’s IIR is 84 percent below comparable 1997 and 1998 industry averages for SIC 495 (1999 data were unavailable at the time of the visit) and the LWDI is similarly 83 percent below its comparable benchmark. The information on the OSHA 200 logs supports the information provided in the application and the company’s first reports of injury forms support the data in the logs. There are no patterns of safety and health problems indicated on the OSHA 200 log.

A team member from the Safety and Health Department is responsible for the entries to the OSHA 200 log and verification of the accuracy of the records. The individual

understands the recordkeeping requirements. Based upon interviews conducted with management and employees and a sampling review of records, the logs accurately reflect the injury and illness experience at the site.

Fluor Fernald requires that subcontractor employers maintain their own logs, however, the Fluor team member who is responsible for the records reviews all reports by contractors. This ensures accuracy and consistency in the process. There were 572 temporary employees at the work site at the time of the team's visit. Injuries or illnesses occurring to temporary employees are recorded on each company's OSHA 200 log, but all entries are included in rate computations for the entire site. Notably, one instance was discovered where a subcontractor reported seven instances of chemical burns (with blistering) during a concrete pouring operation. These had been reported as first aid cases. Fluor Fernald upon review of the incident report properly reclassified the injuries as recordable.

## **III. Management Leadership**

### **A. Management Commitment**

The Fluor Fernald President and other personnel in the management structure have clearly accepted responsibility for the safety of their employees and the operations under their control by establishing Environment, Safety and Health (ES&H) policies. The Presidential Policy states that, “there is no aspect of work at the Fernald Environmental Management Project (FEMP) that is considered so important or urgent that employees endanger themselves or others.... in the performance of their duties”. Both corporate and facility leadership have set high standards for safety excellence. Goals are set by the Central Safety Partnership Council, which consists of management and labor representatives. Goals and standards have been communicated to all FEMP employees through direct and regular communications to employees in various meetings and work groups, through publications such as “Let’s Talk”, “News-to-Use”, posters, badge cards with annual goals on them, and signs. Safety and health authority and responsibilities are well integrated with the organization's management system. The management of FEMP is fully committed to achieving an accident-free work environment.

### **B. VPP Commitment**

The management has shown an open commitment to meeting the requirements of the VPP by its active support of the VPP Steering Committee. Management was helpful in setting up formal interviews by providing an employee list for a random selection of employees and private rooms for conducting interviews. The site scheduled and coordinated the interviews to ensure timely completion.

### **C. Written Safety and Health Program**

All critical elements (Management Leadership, Employee Involvement, Work Analysis, Hazard Prevention Control, Safety and Health Training) and sub-elements of a basic safety and health program are a part of the site's written program. All aspects of the safety and health program are appropriate to the size of the work site and type of operations.

### **D. Leadership and Responsibility**

Top management is committed to the implementation of a well-coordinated safety and health program including establishing a clear line of communication with employees. The Executive Vice President for Environment, Safety, Health, and Quality leads and supports the Environmental Safety and Health Process, tasks the Team Leaders and other management staff with plant responsibility for safety, and assigns specific responsibilities associated with each of their respective expertise areas. Results of management and employee interviews indicate that managers are walking their work areas on a regular

basis to talk to employees about safety. One Vice President interviewed stated that he conducts four walkthroughs per month (soon to be eight), and attends four safety work group meetings each month. When all managers under this Vice President's division are included, there are some 300 walkthroughs performed each month. It was also noted that employees do not fear retribution when talking directly to any level of management about safety and health issues. This was verified in interviews with several employees. In fact, some employees indicated that they had stopped work activities because of safety concerns and were complimented by supervision for their concern.

### **E. Authority and Resources**

All employees at FEMP are responsible for safety. The Presidential Policy states, "Fluor Fernald expects everyone to accept responsibility for the safe conduct of their work.....". The Safety and Health Manager has the ultimate responsibility with the assistance of 211 full-time professional, technical, and administrative employees of the ES&H Team. Adequate resources, including staff, equipment, materials funding, training and professional expertise have been committed to workplace safety and health. This is evident by the programs reviewed, employee involvement, and competence of the employees.

### **F. Line Accountability**

Management is committed to providing the leadership, direction, goals, training, resources, and standards to ensure that all employees may perform their duties in a safe and healthful workplace. Management and employees share in the responsibility to carry out individual duties in a safe manner. Managers are held accountable for safety by virtue of a management performance evaluation system that includes an equally weighted element on safety management. Sample appraisals reviewed indicated that this element was added within the past year and stems from a concern noted in the earlier 1999 Integrated Safety Management (ISM) Verification Report. Some appraisals reviewed had measurable expectations, however some were totally subjective. It is recommended that at least some measurable expectations for this element be included in all management performance appraisals to encourage and ensure accountability. For example, a manager might be required to respond to reported safety and health issues within a defined period.

Subcontractor management is also held accountable for safety performance. For example, one subcontractor project manager was immediately terminated for directing lower-level managers to violate fall protection requirements. Fluor Fernald craft employees are covered under provisions contained in their respective bargaining agreements.

### **G. Planning**

The site has developed and implemented a corporate strategic plan that includes safety and health as a key element. Effective planning being demonstrated at the work level evidences that this commitment has passed down to the craft worker doing a particular

job. The system of work planning is very extensive and involves multiple reviews by the contractor and subcontractors, incorporating the site-specific health and safety plan as well as the site's overall safety rules and programs. Hazards are anticipated and addressed in the planning stage of projects. Changes to plans are tracked and reviewed by the same parties reviewing the original safe work plan. As a result of the implementation of Enhanced Work Planning and its five key elements in 1995, provisions were made to ensure the team concept for work planning was available at Fernald. This concept of work planning now embraces all support organizations (Health and Safety, Rad Engineering, Quality Assurance, Medical, Facility Engineering, Conduct of Operations, and Planners, among others) and workers in the planning of work. Further, workers have the right to final approval of the work package.

## **H. Management Visibility**

Management's attitude toward safety and health is very pro-active. The Site Manager's commitment is clearly evident by the effort that has been put into the program. Top-level management, including the President of Fluor Fernald, regularly participates in walkthroughs of workspaces in the facility to demonstrate their commitment to safety and to seek feedback from employees. Managers are held accountable for their safety and health (S&H) responsibilities and maintain a policy of accessibility with regards to S&H issues that arise in the workplace. An "open door" policy ensures that any employee at any time can express an S&H concern to any level of management.

## **I. Subcontractor Programs**

FEMP has approximately 575 subcontract workers representing 55 different firms. Major subcontractors include Wise Construction, IT Corporation, Mactec, 3-Phase Electric Company, Demco, B&W Services Company, Foster Wheeler Environmental, and Petro Environmental. The exact number of workers and the companies represented varies from day to day. The job divisions are approximately 25 percent radiation technicians, 33 percent construction workers (Cincinnati Building Trades Council) with the rest being of a varied nature.

Fluor Fernald requires that all contractors and subcontractors undergo a thorough review of their safety record and their safety and health programs before being permitted to submit a bid. A detailed procedure for evaluating a contractor's safety and health history is contained in RM-0021, SPR 1.7. In addition, an aspiring contractor's safety record is the ONLY criteria based on pass/fail and is thus a critical attribute. An experience modifier rate (EMR) of 1.25 is required on all contractors with some projects having a more stringent limit. The current Silos 1 and 2 project has an EMR limit of 1.0. For companies that are too new to have a five-year history, OSHA case rates must be below the average for the representative Standard Industrial Code. Contractor employees receive the same level of site training as all permanent employees in accordance with the level of access required. This fact was verified with senior-level managers, mid-level managers, labor, and DOE personnel.

Through the contractual language, all site safety requirements flow down to lower level contractors resulting in safety and health requirements that apply to workers on site in a universal fashion. All individuals interviewed stated that the site has a single set of safety requirements and all workers are treated equally in terms of safety requirements, expectations and performance. In order to monitor the safety and health aspects on lower level contracts, Fluor Fernald safety and health professionals review contract submissions for safety and health content and provide support as needed. A Fluor Fernald safety and health professional is also assigned to monitor each and every construction contractor. Although each subcontractor has a different safety program, a consistent level of expected performance is maintained throughout.

## **J. Safety and Health Program Evaluation**

An annual program evaluation of the site was conducted in preparation for the fall 1999 ISM Verification Review. The evaluation was targeted to specifically address the provisions contained in the site's Integrated Safety Management Program. The 1999 written evaluation was reviewed by the team using a crosswalk prepared by the site for comparing the content of the ISM evaluation against specific DOE-VPP elements and subelements. The evaluation did not cover all the elements and subelements of the DOE Voluntary Protection Program. Further, it did not indicate that opportunities for program improvement were identified and "rolled" into a defined set of goals and objectives for the following year. However, at the time of this review, the site was preparing an evaluation for year 2000 but it was not yet completed. Subsequently, the site submitted the most recent program evaluation document within a firm 30-day deadline set by the team. It was comprehensive, addressed all the elements, assigned responsibilities for corrective measures to various individuals, and was used to develop the goals and objectives for the following year.

## IV. Employee Involvement

Management was very accommodating in providing the team with offices for employee interviews. The formally interviewed employees were randomly selected based on jobs and locations throughout the various units. All employees interviewed were comfortable in talking with members of the DOE-VPP On-site Evaluation Team. Employees indicated that they understood their responsibilities in the event of emergency situations. The On-site Evaluation Team's assessment confirmed that Fluor Fernald employees are knowledgeable about the facility's safety and health program.

Employees were knowledgeable about VPP participation, including their right to request and receive reports of inspections, accident investigations, and to stop work that is considered unsafe without recrimination. Employees also know of their right to lodge a formal complaint. All employees interviewed were very knowledgeable about the safety committees on site. Each had made suggestions during one of their meetings about the need to correct a safety hazard and it was handled promptly. For example, one suggestion was to put a guard on a steel-bladed weed cutter. Within a week, the guard was fabricated and installed on the weed cutter.

Employee involvement in the site's safety and health program via committees is an integral part of the overall safety and health program. Employees participate in several ways, such as through the Safety First Team, founded in 1994; the Tripartite Safety Committee founded in 1989; the Construction Safety Committee founded in the 1950's, and the 25-member Committee founded in 1957. For example, employees stated that a safety advocate on the Safety First Team represented every work group, which is the main employee-driven safety team on site. Safety First Workgroups routinely assess their environment with management and interact with management for issue resolution. There are also other committees in addition to these in operation at the site. This demonstrates a long-standing and strong commitment to safety from both the employees and the management. Employees are also involved in many direct work activities that are noted in other sections of this report. One interviewee stated that he had worked other places that he perceived to be safe until he came to work at FEMP and found out what safety really meant. One employee put things in perspective with his comment that when it comes to safety, "Working here is like going from driving a GEO to driving a Cadillac".

The site meets the DOE-VPP program sub-element that specifies that construction applicants must have a labor-management safety committee. The membership consists of representatives from DOE, Fluor Fernald management, and each of the three unions on the site. The existing Tripartite Safety Committee's charter was modified to provide the structure for this DOE-VPP program element. There is a quorum provision for at least half of the committee membership being present, including at least one representative from each of the three site unions, the local DOE office, and Fluor Fernald. Minutes are taken and distributed for each meeting. The committee meets at least monthly. The

group may also convene at any time for special meetings as needed. The hazard assessment activity is performed such that the entire work site is covered each month. Since the site has many and varied subcontractors and various labor organizations, the method adopted for hazard assessments is modified from the one described in the DOE-VPP program documents. It does, however, meet the intent and scope of the program requirements. Basically, Fluor Fernald and each subcontractor on-site perform regular work-site assessments. The subcontractors use teams consisting of a labor representative, a member of the particular contractor's management team, and a representative from Fluor Fernald. Fluor Fernald's team consists of labor, management and professional staff members. The results of these assessments are then forwarded to the appropriate committee representative for formal presentation at the labor-management committee meeting for discussion and resolution each month. Committee members are also allowed to observe or assist in accident investigations, have access to all relevant safety and health data, and have adequate training in hazard recognition.

Employees are knowledgeable about the VPP effort at this site through the VPP Steering Committee, and they see it as effective. The committee is made up of 19 employees, including hourly-classified employees, and was founded in 1995. It is facilitated by co-chairpersons which represent both management and employees. Committee members understand their role and receive appropriate training. All members have additional hazard recognition and incident investigation training. The committee meets on a weekly basis, and minutes are kept for each meeting.

## V. Worksite Analysis

### A. Management Understanding

Management has clear understanding and knowledge of the hazards at this site. Methods used to determine uncontrolled hazards are varied and include activities such as: process hazards analysis (PHA), industrial hygiene and radiological health surveys, confined space surveys, radioactive source surveys, personal protective equipment evaluations, self-inspections, routine hazard analysis, employee reports of hazards, accident investigations, and trend analysis.

### B. Industrial Hygiene, Health Physics and Safety

Plant facilities were toured and all spaces visited were well kept and clean. Quantitative industrial hygiene monitoring is conducted by industrial hygienists or industrial hygiene technicians under the guidance of an industrial hygienist, as appropriate. Comprehensive and updated baseline industrial hygiene monitoring data has been maintained. In 1993, the FEMP site had a comprehensive baseline radiological, safety and health survey conducted in its post-production state as well as a comprehensive survey for asbestos contamination. All hazards were identified and located at that time. Since no production has been conducted since 1989, the site has remained unchanged awaiting demolition and remediation activities. Approximately two or three years ago the site was re-organized such that each portion of the site to be demolished and remediated was given a separate project status and managed accordingly. Since the site has been subdivided by projects, as a portion of the facility is scheduled for disassembly and demolition, a more detailed radiological, safety, and health hazard assessment is performed by site safety and health professionals. The staff is well acquainted with the processes that had been previously conducted within the particular portion of the facility to be demolished. A safety and health matrix is developed for the area, which identifies in detail, the hazards and their location within the given area. This matrix is then incorporated into the pre-bid package for solicitation of bids as well as any methods, equipment and procedures specified for use in conduct of the work.

Industrial hygiene, injury, and medical recordkeeping at this site are of good quality. Four Certified Industrial Hygienists and three Certified Safety Professionals are on staff. DataChem Laboratories, Inc. provides comprehensive analytical laboratory services. Results from surveys are maintained in written and/or electronic form. All sampling results are communicated to affected employees.

The site has implemented a well-integrated and effective radiological health program, which maintains occupational exposures as low as reasonably achievable (ALARA). The team determined from formal and informal interviews with workers, radiation protection staff and managers that assigned workers in these areas were knowledgeable and professional in the conduct of their duties. Each clearly knew their roles and

responsibilities for sustaining safe operations. The site Occupational Radiation Protection Program was evaluated in December 1999 as part of the Department of Energy Phase II ISM Verification. At the time, the Verification Team also found that the program was well documented and integrated into the site wide environment, safety and health program.

The site has a comprehensive assessment program in place to evaluate the radiological protection program against 10 CFR 835, Occupational Radiation Protection. The site radiation control function is managed directly through the site project line management and programmatically through the site support programs. Programmatically, there are three radiological control organizations that report to the site Health and Safety Manager. These are Radiological Compliance, External and Internal Dosimetry, and Air Monitoring and Instrumentation. Radiation Control Technicians (RCT's) are matrixed to projects and work directly for one of four Health and Safety Coaches who organizationally report to one of the four major projects on site. There are three Certified Health Physicists on site.

Individual roles and responsibilities were discussed with several members of the radiological control organization. Organizational responsibilities were well understood and defined within the radiological control department. RCT's who are assigned to specific projects commented during interviews that their matrix support to projects is working well and that they are very involved in the pre-planning and post-job work processes.

Individual and collective radiation exposures at the site are well below regulatory limits. Through discussions with several radiological workers, it was evident that individual concerns were adequately resolved by the radiological control organization. Response to worker concerns regarding radiological control issues was determined to be a strong point for this program area.

As required per 10 CFR 835, Occupational Radiation Protection, and site procedures, the site performs a Triennial Self-Assessment Program Evaluation of all functional elements of the radiation protection program no less frequently than every three years. The most recent evaluation report is dated July 2000. Findings and concerns are managed via the site-wide Non-Conformance Tracking System. Deficiencies that require follow-up but are not findings or concerns are managed through the Radiological Deficiency Reporting System.

The site develops and publishes ALARA goals on an annual basis. In support of monitoring these goals, the site has developed and established meaningful performance indicators, the status of which are reported and tracked on a monthly basis. These indicators are:

- collective dose (internal and external)
- highest individual exposure by job title
- personnel contaminations (loggable, reportable, skin, clothing)

- Price Anderson Amendments Act noncompliances
- radiological deficiency reports
- in vivo counts
- bioassay results
- internal dosimetry evaluations
- monthly breathing zone air samples

The team reviewed survey records, observed ongoing work activities, and noted evidence that appropriate measures were taken prior to release of equipment and property for nonradiological or unrestricted use. Technical requirements for the conduct of work incorporated appropriate radiological criteria to ensure that radiation exposures are ALARA. Daily pre-job briefings for ongoing and new work activities continue.

Work is controlled via the Radiation Work Permit (RWP) process. Currently, there are approximately 180 active RWP's. In January of each year, approximately 120 RWP's are reviewed and reissued for the next year.

Through implementation of site procedures, pre-job reviews, and regular surveillance, the contractor has implemented an effective program to maintain occupational exposures ALARA.

### **C. Pre-Use Planning**

Occupational safety and health professionals analyze new equipment, materials and processes for potential hazards prior to their purchase or use. These professionals are also involved from the beginning of a project to ensure that potential safety and health hazards are accounted for and appropriate controls instituted. This activity occurs at the time requisitions are prepared for affected equipment and when the ordered equipment arrives. Purchase requisitions for chemicals are reviewed by staff industrial hygienists, and Material Safety Data Sheets (MSDS's) are requested and made available. Instructions for the use of newly introduced materials are also written. If a subcontractor provides the materials, that subcontractor is required to provide the FEMP industrial hygienists the MSDS's for all hazardous materials they propose to bring on site. For purchases involving new equipment, safety professionals review the equipment and operating procedures before the equipment is put into service.

A new program, the Chemical Management Program, has been established to improve control over the chemical inventories on site. Chemical inventories are identified in a computerized database and are tracked from purchase through use via bar coding of materials and database entries. The purpose of the system is to maintain control of the chemical inventories, assure their use, and minimize quantities of leftover chemicals that would have to be handled as radioactive hazardous waste.

For new and existing projects and/or processes there is a formal process in place for the start-up or restart of the project/process. Components of the start-up/restart process utilized for start-up/restart are defined by formal Safety Analysis Reports, Design

Reviews, Process Hazard Analyses, Risk Assessments (RA's)/Safety Analyses, Operational Readiness Reviews (ORR's), Job Safety Analyses (JSA's), PPE Hazard Assessments, Preliminary Hazard Reviews, Purchase Requisition Reviews, and Safe Work Permits.

Some of these procedural components are identified by the Pre-operational Assessment (PA) Program document RM-0025. This document establishes the requirements and methods needed to conduct ORR's and RA's prior to start-up or restart of Hazard Category 1, 2, or 3 activities. Procedure OP-1034, Operational Readiness Review (ORR) and RA's addressed in OP-1035, Readiness Assessment System specifically addresses ORR's. Procedure RM-0025 also addresses the requirements needed to conduct a Standard Start-up Review. For projects designated as Other Industrial Hazards or Radiological at FEMP, Fluor Fernald has developed the start-up verification methodology known as the Standard Start-up Review (SSR). The SSR process applies the principles of the ORR/RA process in a graded manner. The process described in this procedure is used to evaluate and document the start-up/restart of project or activity readiness, even if it does not require formal, independent pre-operational assessment. The process for start-up and restart of nuclear facilities and projects at FEMP comply with the requirements of DOE Order 425.1A. FEMP procedure RM-0025 defines the approaches and methods for implementing these requirements and establishes the pre-operational readiness review system to independently verify readiness to start-up or restart operations.

At FEMP, construction is not normally considered an operation. Construction consists of activities performed to design, build and test a facility to ensure it is operable. A pre-operational assessment will normally be performed at the point between construction completion and before turnover to the organization that will operate it. Performance of the assessment will be conducted prior to the initiation of any activity that introduces a hazard, such as, prior to firing a boiler with natural gas or handling contaminated soil. Some component or system testing with energized equipment and knowledgeable start-up engineers may be appropriate prior to the pre-operational assessment, but full operations will not commence until the readiness review has been completed.

#### **D. Hazard Analysis**

For site operations and maintenance, the hazards are identified and an analysis is performed to determine the hazards present and the appropriate protection techniques. This is done using the work permit process for 'routine' hazards graduating up to detailed nuclear, radiological and system safety analysis for the more complex hazards. The work permit includes sections for confined space, respiratory protection, other personal protective equipment, fall protection and ground penetration. Three work packages were examined to verify that the analysis and documents matched the observed hazards.

A review of hazard analysis documents and procedures and interviews with personnel, indicated that the hazard analysis process is inclusive from the work permit system for specific evolutions and tasks, to job safety analyses (JSAs) for routine and ongoing tasks

and complex safety analyses for major facility operations. The JSA program is believed noteworthy due to workgroup participation in JSA development with support from Safety and Health Professionals. The procedure for JSA's is outlined in RM-0021 under SPR 2-7. This procedure assigns the task of writing JSA's to the craft personnel actually performing the work with assistance from the Safety and Health group. The Safety and Health group will approve the completed JSA, maintain the document and enter the complete approved analysis into the computerized site information network.

The FEMP Work Permit Procedure, SH-0021, describes the use and review of work permits. Permits are required for 9 major groups of activities to include Radiological Work, (ground or wall) Penetration, Hot Work, Asbestos, Confined Space, Chemical/Hazardous Materials, Nuclear Materials, Criticality and Service Interruption. The five groups that routinely review these permits are: Radiological Control, Industrial Hygiene, Safety Analysis, Fire Protection and Safety Personnel. The completed work permit must be present during task performance and all workers involved in the task must be briefed on the permit package.

### **E. Routine Inspections**

Formal self-inspections and audits are conducted at FEMP on a routine basis. Many audits are performed daily while formal self-inspections are performed weekly and the results compiled and acted upon as necessary. Safety representatives, industrial hygienists or their technicians, and sometimes, radiological technicians from Fluor are at each project site daily to monitor work activities. These personnel often compile a summary of their daily activities in either logbooks or in a Lotus Notes database computer system known as the NSF Health and Safety Log. Although industrial hygiene generally used this system throughout the site, safety specialists were not always using the system and review of other means of communication determined that on at least one project, communication was strictly verbal and undocumented on a daily basis.

Subcontractors conduct their own comprehensive site audits on a weekly basis in conjunction with Fluor Fernald representatives. In addition, the subcontractors regularly conduct routine inspections of safety equipment, lift equipment, tools, and other materials that may impact safety on the job sites.

A formal "Event Investigation and Reporting" procedure, OP-1006 exists that is used to record and track any hazard that is identified by any observer and meets the criteria in the procedure. This procedure, when utilized, ensures that the hazard is properly addressed and information regarding the issue is properly disseminated to the appropriate personnel. However, all parties based upon interviews with various project managers and site safety personnel do not always utilize the procedure. That is, it was discovered that not all safety personnel on all projects were using the NSF Log and it is recommended that this Log or some other form of daily documentation be mandated for recording and communicating the work site activities of field safety professionals to make certain no hazardous conditions "escape".

Some hazards are immediately addressed, when appropriate, and lessons learned are transmitted immediately or within the next 24 hours to the affected work crews. This is an effective communication tool and re-instruction method for workers and when coupled with the NFS Safety and Health Log system accomplishes an effective method of communicating observed hazards to upper management.

Of note, workers often commented on the amount of oversight on projects at FEMP and the safety of the environment. Frequently workers remarked that this was the safest construction site where they had ever worked.

## **F. Employee Hazard Reporting System**

Employees interviewed stated that they had several options when it came to reporting hazards. These included, reporting it to their safety advocate, to their supervisor, to various safety and health professionals, and if necessary directly to upper management. Employees stated that most of the hazards or findings were handled promptly within their own workgroups, seldom did they have to go outside their workgroup.

## **G. Accident/Incident Investigations**

Accidents and incidents are investigated as required by site procedures following the guidelines and criteria of DOE Order 225.1. Investigative teams consist of employees, supervisors, managers, safety and health personnel and medical professionals.

The goal of all investigations is to discover all the facts in order to prevent a recurrence. An active lessons learned program is used to convey the results to on-site employees and off-site organizations. The results are captured in FEMP Occurrence Reports, which were readily available. Informal interviews with employees indicated that lessons learned are covered during regular safety meetings. The lessons learned database is accessible electronically by all employees. Corrective actions are tracked via the Commitment Tracking System until verified completed by the Quality Assurance Staff.

Accident investigators are adequately trained in the use of the System Improvements™ TapRoot® Incident Investigation System. Additional training is provided per the site procedure OP-1006, "Event Investigation and Reporting". Trained individuals are available to use other investigative tools and methods (such as barrier analysis, change analysis, and Management Oversight and Risk Tree Analysis).

Near miss incidents and abnormal occurrences are investigated with the same vigor and detail as accidents. Investigations involving four types of incidents were reviewed during the site visit. The types are summarized below:

1. Accidents involving injury to an employee;
2. Near miss incidents (no injury or major property damage);
3. Violations of a procedure by subcontractor (e.g. fall protection);  
and,
4. Radiological incidents

A sampling of accident/incident reports indicated that they were properly investigated and lessons learned were compiled and disseminated.

## **H. Trend Analysis**

All injuries are trended each month by injury classification, job classification of injured employee, injury type, body part injured, cause, time of injury, location, and injured employee's experience level. Injuries, accidents, and at-risk behavior are discussed at division/department staff meetings and during regularly scheduled safety meetings.

Trends are discussed in:

- President's Safety Council meetings
- Central Safety Committee meetings
- Safety First meetings
- Tripartite meetings

Trending is used both to gauge the effectiveness of the injury reduction effort and to indicate the need for program changes. When trending indicated an increasing injury rate this past summer, Fluor Fernald senior management met with all levels of supervision to determine a course of action to reverse the negative trend. Supervisors were asked to provide three measurable and personal commitments that they could accomplish to improve the safety effort. These commitments were used to develop improvements and were included during the development of the individual manager's performance criteria. This demonstrates an effective use of the trending analysis.



## **VI. Hazard Prevention and Control**

### **A. Access to Certified Professional Expertise**

The site has ready access to certified professionals. Four Certified Industrial Hygienists, three Certified Safety Professionals, and three Certified Health Physicists are on site. The medical department is staffed with two full-time physicians and three Certified Occupational Health Nurses.

### **B. Methods of Hazard Prevention and Control**

Hazards are controlled using engineering controls, PPE, and work practice guidelines. These controls are reviewed and only need updating on an infrequent basis, as they are well characterized. All site safety rules, safe work practices, and PPE usage were found to meet requirements. The site has undertaken a program requiring all newly introduced hazardous materials to be centrally received at one point so that they can be controlled and that Material Safety Data Sheets can be entered into the central system. Fluor Fernald and its subcontractors, first screen any new hazardous chemical requested for site use, during the safe work plan development and review process. This is done in order to assure that there is not a less hazardous substitute available which could serve the purpose just as effectively.

Subcontractors work closely with FEMP personnel to anticipate work hazards and provide precautionary protection to workers in potential hazardous conditions. All confined spaces and soil penetrations are screened by the contractor for the existence of hazards prior to the subcontractor beginning work on such. For example, during the removal of an asbestos-containing material containing 40% Amosite asbestos, it was found that worker exposures were significantly above the OSHA Permissible Exposure Limit (PEL) for the first portion of this operation. Although the exposures did not exceed the protection ability for the respiratory protection in use, work practices and engineering controls were reviewed by the subcontractor and the contractor health and safety personnel, as well as the management for each group. Work practices were improved and engineering controls were increased well beyond normal requirements for the operation. Although exposures remained above the OSHA PEL, both the subcontractor and contractor agreed that the limits of controls had been reached and that a higher level of respiratory protection, while offering a measure of insurance against any exposure would present a potential safety hazard on the job. This demonstrated the close working relationship of the subcontractors on the site with the contractor.

The contractor requires extraordinary measures that go beyond current OSHA standards in several ways to anticipate potential hazardous conditions, in the area of fall protection, heat stress, cold stress, and ergonomics.

Engineering Controls - Engineering controls are the preferred method for eliminating/ minimizing employee exposure to hazards. Fluor Fernald has a company-wide policy requiring the use of fall protection on job sites at any elevation in excess of six feet above an adjacent work surface, including scaffolding and ironwork. This is well in excess of current OSHA construction requirements. The company also has set policies for shutdown of operations in the event of lightning, thunderstorm activity and shutdown of crane operations in the event of high winds in excess of 25 miles per hour. These provisions also exceed OSHA requirements.

There have also been considerable resources expended in the area of ergonomics. A full-time ergonomics technician conducts evaluations of work areas upon request throughout the facility and has done many of the work areas already including most office areas. Ergonomic furniture, keyboards and other computer equipment were evident in use in many office settings. Work areas where cases of potential ergonomic injury have occurred are evaluated as well as the entire work section associated with the area of concern. Ergonomic training is performed for workers in potential exposure areas.

Administrative Controls - The type of work being conducted at this site does warrant/utilize administrative controls that entail time rotation or other exposure control strategies. There is extensive use of personal protective equipment on the work site. A rigorous program has been developed and followed for the control of heat stress hazards, which anticipates hazardous heat conditions. The program involves the medical staff and industrial hygiene staff in training workers on hazardous heat conditions, effects and treatments of heat illness, monitoring heat stress levels using known techniques and instrumentation, implementing work/rest regimens known to reduce affects of heat, and medically monitoring workers in potential hazardous heat level conditions. Heat illness cases have been dramatically reduced as a result.

Safety and Health Rules - The safety and health rules to be followed by all employees, including subcontractor employees, are documented in the FEMP's Human Resources Procedure HR-145. These rules apply equally to all employees including subcontractor employees.

Personal Protective Equipment (PPE) - Hazards are usually anticipated and the personal protective equipment necessary for safe completion of a job is supplied by the subcontractors and, where necessary, the contractor. PPE is required throughout the site with 29CFR1910.120 level D clothing required in the former process area and on all construction sites. Fluor Fernald mandates the use of a hardhat, safety glasses with fixed sideshields, safety-toed footwear, and a safety vest for work or visitation of the general work areas. Additional PPE including anti-contamination clothing, respiratory protection including full-face air purifying respirators, powered-air purifying respirators, and self-contained breathing apparatus, chemical-handling gloves and aprons, and Kelvar chaps for

chain saw use, is required depending on the hazards present. Observations in the construction area show universal use of hard hats, eye protection and steel-toed shoes with orange high visibility vests for heavy equipment movement areas. The level of PPE above the level D requirements is specified through the work permit system including the radiological work permits. Use of anticontamination clothing is restricted to only those who have completed radiological workers training. Computer bar code readers verify training and the “pink” cards attached to the security badges. Respirator usage is restricted to those who process a current evaluation by the medical department, respirator training, and a respirator fit test. Respirator certification is verified before the respirator is issued for each entry into an area requiring respirator usage.

All employees interviewed on the various projects at the site indicated that they were provided all personal protective equipment specified for the job. They also indicated that the company identified the equipment necessary for each job well in advance of its use and provided training to workers on its use and the reasons for its use. One worker remarked that he had been so sold on the use of PPE on his job here, that he found himself using PPE at home on jobs he had not used it on before, such as lawn cutting and trimming. Further, he encouraged his family to follow his lead in that regard.

### **C. Disciplinary System**

The Company has had a progressive disciplinary system in place for several years. Employees are aware that failure to follow safety rules could result in disciplinary action. The disciplinary system equally applies to both employees and management. Fluor Fernald craft employees are covered under provisions contained in their respective bargaining agreements. The safety and health rules to be followed by all employees, including subcontractor employees, are documented in the FEMP’s Human Resources Procedure HR-145.

### **D. Preventive/Predictive Maintenance**

The preventive maintenance program is accomplished by performing inspections, calibrations, tests, and services at specific intervals. Maintenance is performed according to the procedures described in PL-3080, Maintenance Implementation Plan, the site maintenance plan and MT-0003, FEMP Work Request/Order Procedure. These documents include both preventive and corrective maintenance. Work requests are used to document periodic inspections, tests, calibrations, and servicing equipment. Work requests are broken down into four categories:

1. Preventive Maintenance;
2. Work Tickets;

3. Work Orders;
  - Alterations (AL)
  - Fabrications (FB)
  - Corrective Maintenance (CM); and,
4. Planned Maintenance (a sub-set of preventive maintenance for garage services)

Maintenance is accomplished by initiating work requests through the Automated Work Package (AWP) system or a Garage Service work request. Preventive maintenance work orders and non-planned time sensitive work orders are generated and maintained in the Computerized Maintenance Management System (CMMS) database. The AWP is a computer based program system designed to allow initiation of a work request, planning, review and approval to be done electronically. This data is then processed by CMMS, which provides for the storage of data and documentation for the preventive maintenance program.

Work orders contain pre-defined data, including the work order number and are generated weekly by the scheduling department. Preventive maintenance tasks and frequencies are determined on the basis of vendor recommendations, sound engineering practices, regulatory agency requirements, site recommendations, and in-house experience.

Preventive maintenance task lists are contained in Work Order Job Plans. These provide instructions for the specific piece of equipment to be serviced, the specific craft that is to perform the maintenance task, such as, an instrument technician, electrician, or millwright, the number of these craftsmen required, the frequency at which the tasks are to be performed, and any special tools required to complete the task. Completed Work Order Job Plans are returned to Document Control for entry into the CMMS system.

If additional maintenance (not identified on the preventive maintenance work order) is required, an additional work order is generated for review by all of the support organizations, i.e., Engineering, Quality Assurance, Occupational Safety and Health, etc., prior to performing the work. The additional work is then rescheduled.

### **E. Emergency Preparedness/Emergency Response**

FEMP performs annual emergency drills to ensure all employees are involved in at least one drill. In 1999, a total of 19 separate drills were held including table top exercises, evacuations, staged fires, criticality events and a full-scale biological threat event. The biological threat event was not previously planned. The drills are comprised of emergency response teams and affected personnel. Full response drills are held at biannual intervals and involve on-site and off-site personnel, local response teams, and numerous players, observers and regulators. Interviews and plant documents indicate that the company maintains an extensive emergency preparedness and response system to include emergency response planners, a full time professional fire department, an emergency response manager, and a fully staffed medical department. The controlling plant document is RM-3020 and emergency response training is provided as part of the

basic site orientation, site worker training and general employee training. All workers, visitors and any other person granted access to site are required to be familiar with the site alarm system, the various types of alarms and the steps to take following a particular alarm. This information is covered in the visitor briefing, the visitor information sheet, general employee training and through annual refreshers.

## **F. Medical Program**

The medical programs for employees on the site are excellent. There are two full-time physicians (which includes the Medical Director) in the clinic for maintaining coverage during day hours when more than 90 percent of the workforce is on duty. Physicians-in-training in the Occupational Medicine field serve in the facility twelve hours per week as well as Board Certified physicians on the faculty at the University of Cincinnati, who serve an equivalent amount of time. The medical department was also staffed with three Certified Occupational Health Nurses. The site's emergency response squad is staffed by level II Emergency Medical Technicians for handling medical coverage during night shift hours and weekends.

The Medical Director was interviewed at his office. The Medical Director's responsibilities included reviewing safe work plans from a medical perspective, establishing and providing in consultation with industrial hygiene, pre-employment and periodic surveillance of workers physical conditions where necessary by virtue of the work to be done. The Medical Director developed a job task analysis for a large number of the jobs on the site identifying the hazards of the jobs and the stressors on the jobs which may impact on the ability of the worker to return to work after an injury. This was done primarily to work in conjunction with an aggressive return to duty or transition program so that an employee is returned to the workforce as soon as possible to minimize lost wages, minimize unproductive and lost workdays, and show employees that the company has a sincere and continuing interest in their well being after an injury.

The medical department conducts routine annual physicals for all of the contractor employees, including respirator, asbestos and lead exposure-related physicals and bioassays as necessary. Hearing evaluations and any other medical screenings are also conducted as considered necessary by the industrial hygiene department after consultation with the Medical Director.

One of the Occupational Health Nurses on the medical staff runs a wellness and fitness program. In conjunction with the physicians on the medical staff, she also handles medical management of the individual cases involving injured workers.

## **G. Tracking Systems**

A formal system is in place for recording and tracking any hazard that is identified. The procedure, "Event Investigation and Reporting" (OP-1006), is designed to ensure that hazards are properly addressed and appropriate feedback information provided to appropriate personnel.



## VII. Safety and Health Training

Fluor Fernald has an on-site training department staffed with thirteen instructors. The staff is supplemented as needed by subject and project experts on-site, the University of Cincinnati and University of Findley faculties, and commercial training vendors. In addition to receiving General Employee Training (GET), all employees receive safety and health training appropriate for the hazards to which they are potentially exposed. The training records for all individuals at the site are maintained on a computerized database called Fluor Fernald Training System. The Training Matrix, a component of the database, includes an individual's course completion dates for:

- Access training (PPE, hearing protection, emergency response, asbestos, fire extinguishers and vehicle safety);
- Site worker training (such as that related to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and for Satellite Accumulation Areas and Waste)
- Various occupational safety programs (program organization, responsibilities, industrial hygiene, and safety);
- Health hazards awareness (chemical, radiological and mechanical hazards, confined spaces, asbestos, temperature extremes and noise exposure);
- Identification and monitoring of health hazards (air monitoring, hazard recognition, and hazard communication and job coverage); and,
- Protection against health hazards (permits, administrative controls and engineering controls, PPE, decontamination, work management programs, container management and handling, and safety plans).

The computer database also contains the academic and performance evaluations required for job qualifications. Matrices are produced on a monthly basis, or more often if needed by the project. The matrices contain current information on an individual's training accomplishments and qualifications. Supervisors may manually update the matrices as their personnel complete training by referring to Intranet training transcripts. The database is maintained current with entries made within 24 hours of submitting records of course completions. Task specific training data, maintained on the computer is not required of every worker but applies to specific tasks.

The Training Matrix provides information on the status of recurring training and identifies a due date, information available through the HIS-20 system used in badging in controlled areas. The Fluor Fernald Training System can produce individual transcripts for limited distribution. Anyone can obtain training records of course completion data for anyone else at FEMP as long as they possess a badge number. The Training Matrix database also provides respirator fit information, and identifies individuals who are out of compliance for such reasons as an outdated training event or overdue fit testing. The most used capability and important feature of this system is the generation of projection reports that identify what training is needed, and when, for any employee.

The team was able to quickly review the training records for approximately 120 employees through the use of the Training Matrix capability, and found it to be complete and accurate, a verification of information provided through interview with 17 employees.

Supervisors - Supervisors understand the hazards of the site and how to protect themselves from these hazards and understand their safety and health role. Employees interviewed indicated that recognized hazards either were corrected by them if possible or would be reported to their supervisors (who would ensure correction). Supervisors are responsible in ensuring that employees under their control receive all training required and that it is documented on training records.

Employees - Employees understand the hazards of their job roles as well as the use of appropriate personal protective equipment (PPE) required. Employees understand why PPE is necessary, what its limitations are, and how to maintain it properly. Newly hired employees are required to participate in an orientation, which trains them on the site's safety and health program.

In general, employees (Fernald and subcontractors) indicated throughout the interviews that they are aware of hazards in their work areas and how to protect themselves, and without exception volunteered praise for the high level of safety at Fernald.

PPE – As noted previously several types of PPE are required throughout the site. Employees are trained thoroughly in its use.

Managers - Managers receive the same ES&H training as the hourly personnel in addition to the management leadership subject categories.

## **VIII. General Assessment**

The team conducted a number of walkarounds during the course of the review and conducted almost two hundred interviews of personnel. During the walk-around, housekeeping was observed to be better than average for this type of facility. PPE is provided and properly used throughout the plant. Employees indicated that any safety and health related problems reported to their supervisors were corrected as soon as possible and several employees noted they were complimented when they notified management of a hazardous condition. There is a strong employee participation and management commitment to safety and health. Several employees indicated that this work site is a much safer place to work compared to other similar places they have worked. The consensus of the team was that the site was above average and no major safety and health issues were noted.



## IX. Team Conclusions

The team was able to reach a consensus conclusion that, pending the timely completion and receipt of the site's program evaluation, and a revision to the charter for the existing labor-management committee, the applicant met and exceeded the acceptance criteria for DOE-VPP. Subsequent to this review, the site submitted its program evaluation under the strict 30-day time limit and it was found to be both comprehensive and to cover the required information. Further, the committee charter was quickly revised to more accurately reflect its role in satisfying DOE-VPP requirements and was submitted for the record. The applicant should be conferred DOE-VPP status.

The following two recommendations, if accepted, are program improvement opportunities identified by the team that can be addressed in a relatively short time. These recommendations are also covered in the main report:

1. The review revealed that not all safety personnel on all projects were using the Lotus Notes database computer system known as the NSF Health and Safety Log. This was found to be an effective system for capturing conditions needing correction and having the information entered into the system for action. It is recommended that the use of this Log, or some other form of daily documentation, be mandated for recording and communicating work site activities of all field safety professionals to make certain no hazardous conditions "escape".
2. Some management-level appraisals reviewed had measurable elements with respect to safety performance, however, some were found to be totally subjective. It is recommended that measurable expectations be included in all management performance appraisals to ensure accountability. For example, a manager might be required to respond to reported safety and health issues within a defined period of time and to conduct a given number of safety walkthroughs during the appraisal period, among others.



**Appendix: DOE-VPP On-site Review Team for Fernald  
Environmental Management Project (FEMP)**

<b><u>Name</u></b>	<b><u>Organization</u></b>
<b>Ron Eimer (Team Leader)</b>	<b>DOE / EH-51</b>
<b>Warren Devereux (Assistant Team Leader)</b>	<b>DOE/ EH-51</b>
<b>Victor Taylor (Fernald Area Office)</b>	<b>DOE / OH</b>
<b>Howard Etkind</b>	<b>DOE / OH</b>
<b>Margaret Marks Lachman</b>	<b>DOE / OH</b>
<b>Bud Schmidt</b>	<b>DOE / OH</b>
<b>Terry Shaw</b>	<b>West Valley Nuclear Services</b>
<b>Bill Wilkerson</b>	<b>U. S. Department of Labor Occupational Safety and Health Administration (OSHA)</b>

